Manor Drive

Computing Curriculum

National Centre for Computing Education

Manor Drive

Whole-school definition of Computing

Computing is the study of computers that include information technology (how IT is used), digital literacy(how IT is used safely and effectively)and computer science (how computers work). Computing is the process of using computer technology to complete a given goal-oriented task. Computing may encompass the design and development of software and hardware systems for a broad range of purposes - often structuring, processing and managing any kind of information - to aid in the pursuit of scientific studies, making intelligent systems, and creating and using different media for entertainment and communication.

I think it's fair to say that personal computers have become the most empowering tool we've ever created. They're tools of communication, they're tools of creativity, and they can be shaped by their user.

Bill Gates

Year 1/2 Cycle A Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS IT around us Online Safety1
Autumn 2	CREATING MEDIA Digital photography
Spring 1	DATA AND INFORMATION Pictograms Online safety
Spring 2	Y1 PROGRAMMING B Introduction to animation
Summer 1	Y2 PROGRAMMING B Introduction to quizzes
Summer 2	CREATING MEDIA Making music Online safety

Year 1/2 Cycle A Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS IT around us Online Safety1	**Autumn 2** CREATING MEDIA Digital photography	**Spring 1** DATA AND INFORMATION Pictograms Online safety	**Spring 2** Y1 PROGRAMMING B Introduction to animation	**Summer 1** Y2 PROGRAMMING B Introduction to quizzes	**Summer 2** CREATING MEDIA Making music Online safety
• Recognise the uses and features of information technology • To identify the uses of information technology in the school • Identify information technology beyond school • Explain how information technology helps us • Explain how to use information technology safely • Recognise that choices are made when using information technology	• Use a digital device to take a photograph • Make choices when taking a photograph • Describe what makes a good photograph • Decide how photographs can be improved • Use tools to change an image • Recognise that photos can be changed	• Recognise that we can count and compare objects using tally charts • Recognise that objects can be represented as pictures • Create a pictogram • Select objects by attribute and make comparisons • Recognise that people can be described by attributes • Explain that we can present information using a computer	• Choose a command for a given purpose • Show that a series of commands can be joined together • Identify the effect of changing a value • Explain that each sprite has its own instructions • Design the parts of a project • Use my algorithm to create a program	• Explain that a sequence of commands has a start • Explain that a sequence of commands has an outcome • Create a program using a given design • Change a given design • Create a program using my own design • Decide how my project can be improved	• Say how music can make us feel • Identify that there are patterns in music • Experiment with sound using a computer • Use a computer to create a musical pattern • Create music for a purpose • Review and refine our computer work
Computing • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Recognise common uses of information technology beyond school • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies **Education for a Connected World links** **Health, well-being, and lifestyle** I can say how those rules / guides can help anyone accessing online technologies	**Computing** • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Recognise common uses of information technology beyond school • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies **Art and Design** • To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space (Lessons 4 and 5)	**Computing** • Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies **Maths** • Year 2 - Interpret and construct simple pictograms, tally charts, block diagrams and simple tables • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • Ask and answer questions about totalling and comparing categorical data	**Computing** • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs **Maths** **Measure** • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] **Geometry - position and direction** • Describe position, direction and movement, including whole, half, quarter and three-quarter turns	**Computing** • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use logical reasoning to predict the behaviour of simple programs **Maths** **Measure** • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] **Geometry - position and direction** • Describe position, direction and movement, including whole, half, quarter and three-quarter turns	**Computing** • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies **Music** • Play tuned and untuned instruments musically • Listen with concentration and understanding to a range of high-quality live and recorded music • Experiment with, create, select, and combine sounds using the interrelated dimensions of music
Technical Vocabulary Information technology (IT), computer, barcode, scanner/scan	**Technical Vocabulary** device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting	**Technical Vocabulary** more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	**Technical Vocabulary** ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design	**Technical Vocabulary** sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code	**Technical Vocabulary** music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit

Year 1/2 Cycle B Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS Technology around us Online Safety
Autumn 2	CREATING MEDIA Digital writing2 Online Safety
Spring 1	CREATING MEDIA Digital Painting
Spring 2	DATA AND INFORMATION Grouping data Online Safety
Summer 1	Y1 PROGRAMMING A Moving a robot
Summer 2	Y2 PROGRAMMING A Robot algorithms

Year 1/2 Cycle B Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS Technology around us Online Safety	**Autumn 2** CREATING MEDIA Digital writing2 Online Safety	**Spring 1** CREATING MEDIA Digital Painting	**Spring 2** DATA AND INFORMATION Grouping data Online Safety	**Summer 1** Y1 PROGRAMMING A Moving a robot	**Summer 2** Y2 PROGRAMMING A Robot algorithms
• Identify technology • Identify a computer and its main parts • Explain how information technology helps us • Explain how to use information technology safely • Recognise that choices are made when using information technology	• Use a computer to write • Add and remove text on a computer • Identify that the look of text can be changed on a computer • Make careful choices when changing text • Explain why I used the tools that I chose • Compare typing on a computer to writing on paper	• Describe what different freehand tools do • Use the shape tool and the line tools • Make careful choices when painting a digital picture • Explain why I chose the tools I used • Use a computer on my own to paint a picture • Compare painting a picture on a computer and on paper	• Label objects • Identify that objects can be counted • Describe objects in different ways • Count objects with the same properties • Compare groups of objects • Answer questions about groups of objects	• Explain what a given command will do • Act out a given word • Combine 'forwards' and 'backwards' commands to make a sequence • Combine four direction commands to make sequences • Plan a simple program • Find more than one solution to a problem	• Describe a series of instructions as a sequence • Explain what happens when we change the order of instructions • Use logical reasoning to predict the outcome of a program • Explain that programming projects can have code and artwork • Design an algorithm • Create and debug a program that I have written
Computing Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies **Education for a Connected World links** **Health, well-being, and lifestyle** I can say how those rules / guides can help anyone accessing online technologies	**Computing** • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. **English – writing (Y1)** • Write sentences by: • saying out loud what they are going to write about • composing a sentence orally before writing it • sequencing sentences to form short narratives • e-reading what they have written to check that it makes sense	**Computing** • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content **Art and Design** • To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space • About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work	**Computing** • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**Computing** • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Recognise common uses of information technology beyond school **Maths** **Measure** • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] **Geometry - position and direction** • Describe position, direction and movement, including whole, half, quarter and three-quarter turns	**Computing** • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs **Maths** **Measure** • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] **Geometry - position and direction** • Describe position, direction and movement, including whole, half, quarter and three-quarter turns
Technical Vocabulary technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	**Technical Vocabulary** device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	**Technical Vocabulary** more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	**Technical Vocabulary** ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.	**Technical Vocabulary** sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.	**Technical Vocabulary** music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.

Year 3/4 Cycle A Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS Connecting Computers3
Autumn 2	CREATING MEDIA Stop frame animation Online safety
Spring 1	Y3 PROGRAMMING A Sequence in music
Spring 2	Y4 PROGRAMMING A Repetition in shapes
Summer 1	CREATING MEDIA Desktop publishing Online safety
Summer 2	DATA AND INFORMATION Branching databases

Year 3/4 Cycle A Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS Connecting Computers3	**Autumn 2** CREATING MEDIA Stop frame animation Online safety	**Spring 1** Y3 PROGRAMMING A Sequence in music	**Spring 2** Y4 PROGRAMMING A Repetition in shapes	**Summer 1** CREATING MEDIA Desktop publishing Online safety	**Summer 2** DATA AND INFORMATION Branching databases
• Explain how digital devices function • Identify input and output devices • Recognise how digital devices can change the way that we work • Explain how a computer network can be used to share information • Explore how digital devices can be connected • Recognise the physical components of a network	• Explain that animation is a sequence of drawings or photographs • Relate animated movement with a sequence of images • Plan an animation • Identify the need to work consistently and carefully • Review and improve an animation • Evaluate the impact of adding other media to an animation	• Explore a new programming environment • Identify that commands have an outcome • Explain that a program has a start • Recognise that a sequence of commands can have an order • Change the appearance of my project • Create a project from a task description	• Identify that accuracy in programming is important • Create a program in a text-based language • Explain what 'repeat' means • Modify a count-controlled loop to produce a given outcome • Decompose a task into small steps • Create a program that uses count-controlled loops to produce a given outcome	• Recognise how text and images convey information • Recognise that text and layout can be edited • Choose appropriate page settings • Add content to a desktop publishing publication • Consider how different layouts can suit different purposes • Consider the benefits of desktop publishing	• Create questions with yes/no answers • Identify the attributes needed to collect data about an object • Create a branching database • Explain why it is helpful for a database to be well structured • Plan the structure of a branching database • Independently create an identification tool
Computing • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Education for a Connected World links** **Privacy and Security** • I can describe simple strategies for creating and keeping passwords private.	**Computing** • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **English** • Pupils should be taught to: draft and write by: in narratives, creating settings, characters and plot • Pupils should be taught to: proof-read for spelling and punctuation errors	**Computing** • Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Computing** • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Computing** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Computing** • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Science** Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions **Maths** • Statistics: interpret and present data using bar charts, pictograms and tables
Technical Vocabulary digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	**Technical Vocabulary** animation, flip book, stop frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.	**Technical Vocabulary** Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.	**Technical Vocabulary** Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	**Technical Vocabulary** text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	**Technical Vocabulary** attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.

Year 3/4 Cycle B Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS The Internet2
Autumn 2	CREATING MEDIA Audio editing Online safety
Spring 1	CREATING MEDIA Photo editing Online safety
Spring 2	DATA AND INFORMATION Data logging
Summer 1	Y3 PROGRAMMING B Events and actions
Summer 2	Y4 PROGRAMMING B Repetition in games

Year 3/4 Cycle B Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS The Internet2	**Autumn 2** CREATING MEDIA Audio editing Online safety	**Spring 1** CREATING MEDIA Photo editing Online safety	**Spring 2** DATA AND INFORMATION Data logging	**Summer 1** Y3 PROGRAMMING B Events and actions	**Summer 2** Y4 PROGRAMMING B Repetition in games
• Describe how networks physically connect to other networks • Recognise how networked devices make up the internet • Outline how websites can be shared via the world wide web (WWW) • Describe how content can be added and accessed on the world wide web (WWW) • Recognise how the content of the WWW is created by people • Evaluate the consequences of unreliable content	• Identify that sound can be recorded • Explain that audio recordings can be edited • Recognise the different parts of creating a podcast project • Apply audio editing skills independently • Combine audio to enhance my podcast project • Evaluate the effective use of audio	• Explain that the composition of digital images can be changed • Explain that colours can be changed in digital images • Explain how cloning can be used in photo editing • Explain that images can be combined • Combine images for a purpose • Evaluate how changes can improve an image	• Explain that data gathered over time can be used to answer questions • Use a digital device to collect data automatically • Explain that a data logger collects 'data points' from sensors over time • Recognise how a computer can help us analyse data • Identify the data needed to answer questions • Use data from sensors to answer questions	• Explain how a sprite moves in an existing project • Create a program to move a sprite in four directions • Adapt a program to a new context • Develop my program by adding features • Identify and fix bugs in a program • Design and create a maze-based challenge	• Develop the use of count-controlled loops in a different programming environment • Explain that in programming there are infinite loops and count-controlled loops • Develop a design that includes two or more loops which run at the same time • Modify an infinite loop in a given program • Design a project that includes repetition • Create a project that includes repetition
Computing • Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Education for a Connected World links** **Managing online information** • I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. • I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.	**Computing** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Education for a Connected World links** **Copyright and ownership** • When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it • I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	**Computing** • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Education for a Connected World links** **Self-image and identity** • I can explain how my online identity can be different to my offline identity	**Computing** • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information **Science** • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.	**Computing** • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Computing** • Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
Technical Vocabulary internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	**Technical Vocabulary** audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	**Technical Vocabulary** image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	**Technical Vocabulary** data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	**Technical Vocabulary** motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions	**Technical Vocabulary** Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.

Year 5/6 Cycle A Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS Systems and Searching Online safety
Autumn 2	CREATING MEDIA Video editing Online safety
Spring 1	Y6 PROGRAMMING A Variables in games (Scratch)
Spring 2	
Summer 1	DATA AND INFORMATION Flat-file databases
Summer 2	

Year 5/6 Cycle A Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS Systems and Searching Online safety	**Autumn 2** CREATING MEDIA Video editing Online safety	**Spring** Y6 PROGRAMMING A Variables in games (Scratch)	**Summer** DATA AND INFORMATION Flat-file databases
• Explain that computers can be connected together to form systems • Recognise the role of computer systems in our lives • Identify how to use a search engine • Describe how search engines select results • Explain how search results are ranked • Recognise why the order of results is important, and to whom	• Explain what makes a video effective • Use a digital device to record video • Capture video using a range of techniques • Create a storyboard • Identify that video can be improved through reshooting and editing • Consider the impact of the choices made when making and sharing a video	• Define a 'variable' as something that is changeable • Explain why a variable is used in a program • Choose how to improve a game by using variables • Design a project that builds on a given example • Use my design to create a project • Evaluate my project	• Use a form to record information • Compare paper and computer-based databases • Outline how you can answer questions by grouping and then sorting data • Explain that tools can be used to select specific data • Explain that computer programs can be used to compare data visually • Use a real-world database to answer questions
Computing • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration **Education for a Connected World links** **Managing Online Information** • I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with. **Privacy and Security** • I can explain what a strong password is and demonstrate how to create one	**Computing** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Education for a Connected World links** **Online relationships** • I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.	**National curriculum links** • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Computing** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information **Maths – Statistics (Year 5)** • Complete, read and interpret information in tables, including timetables.
Technical Vocabulary system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	**Technical Vocabulary** video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	**Technical Vocabulary** variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	**Technical Vocabulary** database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.

Year 5/6 Cycle B Overview

Autumn 1	COMPUTING SYSTEMS AND NETWORKS Communication Online safety
Autumn 2	CREATING MEDIA Web page creation Online safety
Spring 1	Y6 PROGRAMMING B Sensing (micro:bits)
Spring 2	
Summer 1	DATA AND INFORMATION Spreadsheets
Summer 2	

Year 5/6 Cycle B Key Concepts

Autumn 1 COMPUTING SYSTEMS AND NETWORKS Communication Online safety	**Autumn 2** CREATING MEDIA Web page creation Online safety	**Spring** Y6 PROGRAMMING B Sensing (micro:bits)	**Summer** DATA AND INFORMATION Spreadsheets
• Explain the importance of internet addresses • Recognise how data is transferred across the internet • Explain how sharing information online can help people to work together • Evaluate different ways of working together online • Recognise how we communicate using technology • Evaluate different methods of online communication	• Review an existing website and consider its structure • Plan the features of a web page • Consider the ownership and use of images (copyright) • Recognise the need to preview pages • Outline the need for a navigation path • Recognise the implications of linking to content owned by other people	• Create a program to run on a controllable device • Explain that selection can control the flow of a program • Update a variable with a user input • Use a conditional statement to compare a variable to a value • Design a project that uses inputs and outputs on a controllable device • Develop a program to use inputs and outputs on a controllable device	• Create a data set in a spreadsheet • Build a data set in a spreadsheet • Explain that formulas can be used to produce calculated data • Apply formulas to data • Create a spreadsheet to plan an event • Choose suitable ways to present data
National curriculum links • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Education for a Connected World links** • I can describe and assess the benefits and the potential risks of sharing information online. • I can assess and justify when it is acceptable to use the work of others • I can give examples of content that is permitted to be reused	**National curriculum links** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. • use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour. **Education for a Connected World links** **Online relationships** I can use the internet with adult support to communicate with people I know. **Managing information online** I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). **Copyright and ownership** • I can explain why copying someone else's work from the internet without permission can cause problems. • I can give examples of what those problems might be. • When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. • I can give some simple examples. • I can assess and justify when it is acceptable to use the work of others. • I can give examples of content that is permitted to be reused. • I can demonstrate the use of search tools to find and access online content which can be reused by others. • I can demonstrate how to make references to and acknowledge sources I have used from the internet.	**National curriculum links** • Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**National curriculum links** • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information **National curriculum maths links** **Number – addition, subtraction, multiplication, and division:** • Solve problems involving addition, subtraction, multiplication, and division **Statistics:** • Interpret and construct pie charts and line graphs, and use these to solve problems • Calculate and interpret the mean as an average **Education for a Connected World links** **Managing information online** • I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites) • I can use different search technologies • I can evaluate digital content and can explain how I make choices from search results
Technical Vocabulary communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many.	**Technical Vocabulary** website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.	**Technical Vocabulary** Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.	**Technical Vocabulary** data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.